This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

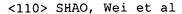
Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

SEQUENCE LISTING



<120> ISOLATED HUMAN DRUG-METABOLIZING
 PROTEINS, NUCLEIC ACID MOLECULES ENCODING HUMAN
 DRUG-METABOLIZING PROTEINS,
 AND USES THEREOF



```
<130> CL001207
```

<140> 09/820,788 <141> 2001-03-30

<160> 4

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1537

<212> DNA

<213> Human

<400> 1

cctqcctqqt cctctqtqcc tqqtqqqqtq qqqqtqccaq qtqtqtccaq aggagcccat 60 ttqqtaqtqa qqcaqqtatq qqqctaqaaq cactqqtqcc cctqqccqtq atagtgqcca 120 tetteetget eetggtggae etgatgeace ggegeeaaeg etgggetgea egetaeteae 180 caggececet gecaetgece gggetgggea acetgetgea tgtggaette cagaacacae 240 catactgctt cgaccagttg cggcgccgct tcggggacgt gttcagcctg cagctggcct 300 ggacgccggt ggtcgtgctc aatgggctgg cggccgtgcg cgaggcgctg gtgacccacg 360 gcgaggacac cgccgaccgc ccgcctgtgc ccatcaccca gatcctgggt tttgggccgc 420 gttcccaagg acgccccttt cgccccaacg gtctcttgga caaagccgtg agcaacgtga 480 tegecteect cacetgeggg egeogetteg agtacgaega ecetegette etcaggetge 540 tggacctagc tcaggaggga ctgaaggagg agtcgggctt tctgcgcgag gtgctgaatg 600 ctgtccccgt cctcctgcat atcccagcgc tggctggcaa ggtcctacgc ttccaaaagg 660 ctttcctgac ccagctggat gagctgctaa ctgagcacag gatgacctgg gacccagccc 720 agccccccg agacctgact gaggccttcc tggcagagat ggagaaggcc aaggggaacc 780 ctgagagcag cttcaatgat gagaacctgc gcatagtggt ggctgacctg ttctctgccg 840 qqatqqtqac cacctcqacc acqctqqcct qqqqctcct qctcatgatc ctacatccgg 900 atgtgcagcg ccgtgtccaa caggagatcg acgacgtgat agggcaggtg cggcgaccag 960 agatgggtga ccaggctcac atgccctaca ccactgccgt gattcatgag gtgcagcgct 1020 ttqqqqacat cqtccccctq qqtqtqaccc atatgacatc ccqtgacatc gaagtacagg 1080 gcttccgcat ccctaaggga acgacactca tcaccaacct gtcatcggtg ctgaaggatg 1140 aggeogtetg ggagaageee tteegettee acceegaaca etteetggat geecagggee 1200 actttgtgaa geeggaggee tteetgeett teteageagg eegeegtgea tgeetegggg 1260 ageceetage eegeataga etetteetet tetteacete eetgetgeag eaetteaget 1320 totoggtgcc cactggacag coccggccca gccaccatgg tgtctttgct ttcctggtga 1380 ccccatcccc ctatgagett tgtgctgtgc cccgctagaa tggggtacct agtccccage 1440 ctgctcccta gccagaggct ctaatgtaca ataaagcaat gtggtagttc caaaaaaaaa 1500 1537

<210> 2

<211> 446

<212> PRT

<213> Human

```
Met Gly Leu Glu Ala Leu Val Pro Leu Ala Val Ile Val Ala Ile Phe
Leu Leu Leu Val Asp Leu Met His Arg Arg Gln Arg Trp Ala Ala Arg
                                25
Tyr Ser Pro Gly Pro Leu Pro Leu Pro Gly Leu Gly Asn Leu Leu His
                            40
Val Asp Phe Gln Asn Thr Pro Tyr Cys Phe Asp Gln Leu Arg Arg
Phe Gly Asp Val Phe Ser Leu Gln Leu Ala Trp Thr Pro Val Val Val
                                        75
                    70
Leu Asn Gly Leu Ala Ala Val Arg Glu Ala Leu Val Thr His Gly Glu
                85
                                    90
Asp Thr Ala Asp Arg Pro Pro Val Pro Ile Thr Gln Ile Leu Gly Phe
                                105
Gly Pro Arg Ser Gln Gly Arg Pro Phe Arg Pro Asn Gly Leu Leu Asp
                            120
Lys Ala Val Ser Asn Val Ile Ala Ser Leu Thr Cys Gly Arg Arg Phe
                                            140
                       135
Glu Tyr Asp Asp Pro Arg Phe Leu Arg Leu Leu Asp Leu Ala Gln Glu
                                        155
                    150
Gly Leu Lys Glu Glu Ser Gly Phe Leu Arg Glu Val Leu Asn Ala Val
                                    170
                165
Pro Val Leu Leu His Ile Pro Ala Leu Ala Gly Lys Val Leu Arg Phe
                                185
            180
Gln Lys Ala Phe Leu Thr Gln Leu Asp Glu Leu Leu Thr Glu His Arg
                            200
                                                205
Met Thr Trp Asp Pro Ala Gln Pro Pro Arg Asp Leu Thr Glu Ala Phe
                                            220
                        215
Leu Ala Glu Met Glu Lys Ala Lys Gly Asn Pro Glu Ser Ser Phe Asn
                    230
Asp Glu Asn Leu Arg Ile Val Val Ala Asp Leu Phe Ser Ala Gly Met
                                    250
Val Thr Thr Ser Thr Thr Leu Ala Trp Gly Leu Leu Leu Met Ile Leu
                                265
            260
His Pro Asp Val Gln Arg Arg Val Gln Gln Glu Ile Asp Asp Val Ile
                            280
                                                285
Gly Gln Val Arg Arg Pro Glu Met Gly Asp Gln Ala His Met Pro Tyr
                                             300
                        295
Thr Thr Ala Val Ile His Glu Val Gln Arg Phe Gly Asp Ile Val Pro
                    310
                                        315
Leu Gly Val Thr His Met Thr Ser Arg Asp Ile Glu Val Gln Gly Phe
                                     330
                325
Arg Ile Pro Lys Gly Thr Thr Leu Ile Thr Asn Leu Ser Ser Val Leu
                                 345
Lys Asp Glu Ala Val Trp Glu Lys Pro Phe Arg Phe His Pro Glu His
                             360
Phe Leu Asp Ala Gln Gly His Phe Val Lys Pro Glu Ala Phe Leu Pro
                        375
                                             380
Phe Ser Ala Gly Arg Arg Ala Cys Leu Gly Glu Pro Leu Ala Arg Met
                                         395
                     390
Glu Leu Phe Leu Phe Phe Thr Ser Leu Leu Gln His Phe Ser Phe Ser
                                     410
                405
Val Pro Thr Gly Gln Pro Arg Pro Ser His His Gly Val Phe Ala Phe
                                 425
Leu Val Thr Pro Ser Pro Tyr Glu Leu Cys Ala Val Pro Arg
```

<210> 3

```
<211> 10278
<212> DNA
<213> Human
<220>
<221> misc_feature
<222> (1)...(10278)
<223> n = A, T, C or G
<400> 3
ageettacaa agtgetggga ttacetgegt gageeacegg gteeggeete tttatgtett 60
actgtactgt ctgtcttgaa aagtacttat tatttttgat tggttcatca tttagtctaa 120
ttaaaataaq agtagtttac acaccacaat tacagtatta taatactctg tttttctgtg 180
tgcttactat taccagtgag ttttgtacct ttagatgatt tcttcttgct cattaatatc 240
ctttttttt tcagattgaa aaactccctt tagcatttct tgtgggatat aggtctggtg 300
ttgatgaaat ctcgcagctt ttgtttgtct gggaaggtct ttatttctcc ttcctgttgg 360
aaggatattt ttgccagata cgttattcta ggctaaaagt tttttttcct tcagcacttt 420
aaatatqtca tqccactccc ccctqqcctg taaggtttcc actqqaaagg tqgctqcccc 480
atgtcatgta ttggagctct actgcatgtt atttgtttct tttctcttgc tgcttttagg 540
atcetttett tateettgae ettteggagt ttaattatea gatgeettga ggtegtette 600
tttgggttaa atctgcttgg tgttctataa acttcttgta caaaaaatca gccaggcatg 660
gtggtgggca cctgtaatcc cagctacttg ggaggctgag gcaggagaat cgcttgaacc 720
ctggaggtgg aggttgcagt gagccgagat cgcatcattg cactcccacc tgggcgacag 780
agcaaaactc cgtctcaaaa aaaaaattat ttgggctcgg tggtgcctgt agtcccagct 840
acttgggagg caggaggtcc acttgatgtt gagattgcag tgagccatga tcctgccact 900
gcactccggc ccgggcaaca gagtgagacc ctgtctaaag aaaaaataaa aataaaaaag 960
caacatatcc taaataaagg atcctccata atgtttccac cagatttcta atcagaaaca 1020
tggaggccag gaagcagtgg agaatgacga ccctcaggca gccctggagg atgctgtcac 1080
aggctggggc aagggccttc aggctaccaa ctgggagctc tgggaacagc cctgttgcaa 1140
acaggaagte atggeeegge cagageeeag aatgtggget gagetgggat eeatgtgaca 1200
getttgagge teacegggag cageetetgg acaggagagg teccatecag gaaacetegg 1260
gcatggctgg gaagtggggt acttggtgcc gggtctgtat gtgtgtgta ctggtgtgtg 1320
tgagagagaa tgtgtgccct gagtgtcagt gtgagtctgt gtatgtgtga atattgtctt 1380
tgtgtgggtg attttctgca tgtgtaatcg tgtccctgca agtgtgaaca agtggacaag 1440
tgtctgggag tggacaagag atctgtgcac catcaggtgt gtgcatagcg tctgtgcatg 1500
tcaaqaqtqc aaqqtqaaqt qaaqqqacca qqcccatgat qccactcatc atcaggagct 1560
ctaaggcccc aggtaagtgc cagtgacaga taagggtgct gaaggtcact ctggagtggg 1620
caggtqqqqq tagggaaagg gcaaggtcat gttctggagg aggggttgtg actacattag 1680
ggtgtatgag cctagctggg aggtggatgg ccgggtccac tgagaccctg gttatcccag 1740
aagcctgtgt gggcttgggg agcttggagt ggggagaggg ggtgacttct ccgaccaggc 1800
ctttctacca ccctaccctg ggtaagggcc tggagcagga agcagcggca aggacctctg 1860
gagcagccca tacctgccct ggcctgactc tgccactggc agcacagtca acacagcagg 1920
ttcactcaca gcagagggcg aaggccatca tcagctccct ttataaggga agggtcacgc 1980
gctcggtgtg ccgagagtgt cctgcctggt cctctgtgcc tggtggggtg ggggtgccag 2040
gtgtgtccag aggagcccag ttggtagtga ggcagccatg gggctagaag cactggtgcc 2100
cctggccatg atagtggcca tcttcctgct cctggtggac ctgatgcacc ggcaccaacg 2160
ctgggctgca cgctacccgc caggtcccct gccactgccc gggctgggca accttgctgc 2220
atgtggactt ccagaacaca ccatactgct tcgaccaggt gagggaggag gtcctggagg 2280
gcqqcaqaqq tcctqaggat gccccaccac cagcaaacat gggtggtggg ttaaaccaca 2340
ggctggatca gaagccaggc tgagaagggg aagcaggttt gggggacgtt cctggggaag 2400
gacatttata catggcatga aggactggat tttccaaagg ccaaggaaga gtagggcaag 2460
ggcctggagg tggagctgga cttggcagtg ggcatgcaag cccattgggc aacatatgtt 2520
atggagtaca aagtcccttc tgctgacacc agaaggaaag gccttgggaa tggaagatga 2580
```

```
gttagtcctg agtgccgttt aaatcacgaa atcgaggatg aagggggtgc agtgacccgg 2640
ttcaaacctt ttgcactgtg ggtcctcggg cctcactgct caccggcatg gaccatcatc 2700
tgggaatggg atgctaactg gggcctctcg gcaattttgg tgactcttgc aaggtcatac 2760
ctgggtgacg catccaaact gagttcctcc atcacagaag gtgtgacccc cacccctgcc 2820
ccacgatcag gaggetgggt etecteette cacetgetea etectggtag eeeegggggt 2880
cgtccaaggt tcaaatagga ctaggacctg tagtctgggg tgatcctggc ttgacaagag 2940
geoetgacee teeetetgea gttgeggege egettegggg acgtgtteag eetgeagetg 3000
gcctggacgc cggtggtcgt gctcaatggg ctggcggccg tgcgcgaggc gatggtgacc 3060
cgcggcgagg acacggccga ccgcccgcct gcgcccatct accaggtcct gggcttcggg 3120
ccgcgttccc aaggcaagcg gcggtggggg acagagaccg cgtttccgtg ggccccgggt 3180
ggacagtgac cgtagcccaa gcagcgccga cagggcgtgg ggtcctggac gtgaaacaga 3240
gataaaggcc agcgagtggg ctgaggacag tgggccagga aaccacctgc acgggggagg 3300
tgcgagtctg tgggctggga gggggcgggg ctactgccca gacccgccag aagcccggtg 3360
ggcgaggctg atgcgtcgaa gtggcggtgg cggggaccgc gcctatgctg cgggctcagt 3420
gtgggcggga cgggcgggat cttccttgag tggaaaggtg gtcagggtgg gcagagacga 3480
ggtggggcca aaccccgccc caggcagggg agcaatgtgg gtgagcaaag agtgggccct 3540
gtgcccagct ggaccgggct agggactgcg ggagaccttg tggagcgcca gggttggagt 3600
gggtggcgga gggtggggcc aaggccttca tggcaacgcc cacgtgtccg tcccgccccc 3660
aggggtgate etgtegeget atgggeeege gtggegegag eagaggeget teteegtgte 3720
caccttgcgc aacttgggcc tgggcaagaa gtcgctggag cagtgggtga ccgaggaggc 3780
cgcctgcctt tgtgccgctt cgccgaccaa gccggtgggt gatgggcaga agggcacaaa 3840
gcgggaactg ggaaggcggg ggacggagaa ggcaacccct tacccgcatc tccccacccc 3900
caggacgccc ctttcgcccc aacggcctct tggacaaagc cgtgagcaac gtgatcgcct 3960
ccctcacctg cgggcgccgc ttcgagtacg acgaccctcg cttcctcagg ctgctggacc 4020
tageteagga gggaetgaag gaggagtegg getttetgeg egaggtgegg agegagagae 4080
cgaggagtct ctgcagggcg agctcctgag aggtgccggg gctggactgg ggcctccgaa 4140
gggcaggatt tgcatagatg ggtttgggaa aggacattcc aggagacccc actgtaagaa 4200
gggcctggag gaggaggga catctcagac atggtcgtgg gagaggtgtg cccgggtcag 4260
ggggcaccag gagaggccaa ggactctgta cccccgtcca cgttggagat ttcgatttta 4320
ggtttctcct ctgggcaagg agagaggtg gaggctggca cttggggagg gacttggtga 4380
ggtcagtggt aaggacaggc aggccctggg tctacctgga gatggctggg gcctgagact 4440
tgtccaggtg aacgcagagc acaggaggga ttgagacccc gttctgtctg gtgtaggtgc 4500
tgaatgctgt ccccgtcctc ctgcacatcc cagcgctggc tggcaaggtc ctacgcttcc 4560
aaaaggettt eetgaceeag etggatgage tgetaactga geacaggatg acetgggace 4620
cageccagec acceegagae etgactgagg cetteetgge aaagaaggag aaggtgagag 4680
tggctgccac ggtgggggc aagggtggtg ggttgaacgt cccaggagga atgaggggag 4740
gctgggcaaa aggttggacc agtgcatcac ccggcgagcc gcatctgggc tgacaggtgc 4800
agaattggag gtcatttggg ggctaccccg ttctatcccc tgagtatcct ctcggccctg 4860
ctcaggccaa ggggagccct gagagcagct tcaatgatga gaacctgcgc atagtggtgg 4920
gtaacctgtt cettgeeggg atggtgacea cetegaceae getggeetgg ggeeteetge 4980
tcatgatcct acacctggat gtgcagcgtg agcccagctg gggcccaagg cagggactga 5040
gggaggaagg gtacagctgg gggcccctgg gcttagctgg gacacccggg gcttccagca 5100
caggcgtggc caggctcctg taagcctaac ttcctccaac acaggaggaa ggagagtgtc 5160
ccctgggtgc tgacccattg tggggacgca tgtctgtcca gtccgtgtcc aacaggagat 5220
cgacgacgtg atagggcagg tgcggcgacc agagatgggt gaccaggctc acatgcccta 5280
caccactgcc gtgattcacg aggtgcagcg ctttggggac atcatccccc tgagtgtgac 5340
ccatatgaca tcccgtgaca tcgaagtaca gggcttccgc atccctaagg taggcctggc 5400
gccctcctca ccccagctca gcaccagcac ctggtgatag ccccagcatg gctactgcca 5460
ggtgggccca ctctaggaac cctggccacc tagtcctcaa tgccaccaca ctgactgtcc 5520
ccacttgggt ggggggtcca gagtataggc agggctggcc tgtccatcca gagcccccgt 5580
ctagtgggga gacaaaccag gacctgccag aatgttggag gacccagcgc ctgcagggag 5640
agggggcagt gtgggtgcct ctgagaggtg tgactgcgcc ctgctgtggg gtcggagagg 5700
gtactgtgga gcttctcggg cgcaggacta gttgacagag tccagctgtg tgccaggcag 5760
tgtgtgtccc ccgtgtgttt ggtggcaggg gtcccagcat cctagagtcc agtccccact 5820
ctcaccetge atetectgee cagggaacga cacteateae caacctgtea teggtgetga 5880
aggatgagge egtetgggag aageeettee getteeacee egaacaette etggatgeee 5940
agggccactt tgtgaagccg gaggccttcc tgcctttctc agcaggtgcc tgtggggagc 6000
```

```
ccggctccct gtccccttcc gtggagtctt gcaggggtat cacccaggag ccaggctcac 6060
tgacgccct ccctcccca caggccgccg tgcatgcctc ggggagcccc tggcccgcat 6120
ggagetette etettettea eeteeetget geageactte agetteteeg tggeegeegg 6180
acageceegg eccagecact etegtgtegt eagetttetg gtgaceceat ecceetaega 6240
getttgtget gtgeeceget agaatggggt acctagteec eageetgete eetageeaga 6300
ggctctaatg tacaataaag caatgtggta gttccaactt gggtcccctg ctcacgccct 6360
cgttgggatc atcctcctca gggcaacccc acccctgcct cattcctgct taccccaccg 6420
cctggccgca tttgagacgg gtacgttgag gctgagcaga tgtcagttac ccttgcccat 6480
aatcccatgt ccccactga cccaactctg actgcccaga ttggtgacaa ggactacatt 6540
gtcctggcat gtggggaagg ggccagaatg ggctgactag aggtgtcagt cagccctgga 6600
tqtqqtqqaq aqqqcaqqac tcaqcctqqa qqcccatatt tcaqqcctaa ctcaqcccac 6660
cccacatcag ggacagcagt cctgccagca ccatcacaac agtcacctcc cttcatatat 6720
gacaccccaa aatggaagac aaatcatgtc agggagctat atgccagggc tacctcccag 6780
ggetcagteg geaggtgeea gaacatteee tgggaaggee ceaggaaaac eeaggaeega 6840
gccaccgccc tcagcctgtc accttgtgtc caaaattggt gggttcttgg tctcactgac 6900
ttcaagaatg aagccgtgga ccctcacggt gagtgttaca gttcttaaag atggtgtgtt 6960
cagagtttgt teettetgat gttaagaegt gtteagagtt tetteettet ggtgggtgeg 7020
tggtcttgct ggcttcagga gtgaagctgc agaccttcac agtgagtgtt acggctctta 7080
aggetgeacg tacggagttg tteattette etggtgggtt tgtggtetea etggeeteag 7140
gagtgaaact gcagtccttc cagtgttaca actcataaag gcagtgtgga cccaatgagg 7200
gagcagcagc agcaagactt actgcaaaca gcaaaagaat gatggcaacc aggttgccgc 7260
tgctacttca ggcagcctgc ttttattccc ttatctgacc cccacccaca tcctgctgat 7320
tggcccattt tacagacagt ggattggtcc acttacagag agctgattgg tgcatttaca 7380
atccctgagc tagacacaga gtactgattg gtatatttac aaaccttgag ctagacacag 7440
agtgctgaat ggtgtattta caatccctta gctagacata aaggttgtcc cagtccccac 7500
tagattagct agatagagta gacagagagc actgattggt gcgtttacaa accttgagtt 7560
agacacaggg tgctgactgg tgtgtttaca aaccttgagc tagacacaga gtgctgattg 7620
gtgtatttac aatcttttag ctagaaataa aggttcccca agtccccacc agattagcta 7680
gatagagtgc taattggtgc atgcacgaac ccggagctag acacagagtg ctgattggtg 7740
catatacaat cctctggcta gacataaaag ttctccaagt ccccacctga ctcaggagcc 7800
cagccagett egectagtgg atectatgee agggeeacag geagagetge etgetagtee 7860
cacaccgggc acctgtactc ctcagccctt gggcagtgga cgggaccagg tgccgtggag 7920
cagtgggagg cacccatccg ggaggctcgg gcctcgcagg gagcccaccg tagggaggct 7980
tgggcatggc aggctgcaag tcctgagccc tgccccgcgg ggaggtgact gaggcctggc 8040
gacaattcaa gtgtggtgag cgccggcagg ccagcagtac tgggggaccc ggtgccccct 8100
ctgcagctgc tggcccaggt gctaagcccc tcactgcctg gggccagagg caccagccgg 8160
ccgctccgag tgcagggccc gctgagcccc tgcccaccca gaactggtgc tggcccgcga 8220
gcaacccagg ttcccgcaca cgcctctccc tccatacctc cccgcaagca gacggagccg 8280
gctccagcct ccaccagtcc agagaggggc tcccacagtg cagcgctggg ctgaacaagg 8340
tectaegett ecaaaagget tteetgaeee agetggatga getgetaaet gageaeagga 8400
tgacctggga cccagcccag ccccccgag acctgactga ggcctttcct ggcagagatg 8460
gagaaggtga gagtggctgc cacggtgggg ggcaagggtg gtgggttgag cgtcccagga 8520
ggaatgaggg gaggctgggc aaaaggttgg accagtgcat cacccggcga gccgcatctg 8580
ggctgacagg tgcagaattg gaggtcattt gggggctacc ccgttctgtc ccgagtatgc 8640
teteggeeet geteaggeea aggggaacee tgagageage tteaatgatg agaacetgeg 8700
catagtggtg gctgacctgt tctctgccgg gatggtgacc acctcgacca cgctggcctg 8760
gggcctcctg ctcatgatcc tacatccgga tgtgcagcgt gagcccatct gggaaacagt 8820
gcaggggccg agggaggaag ggtacaggcg ggggcccatg aactttgctg ggacacccgg 8880
ggetecaage acaggettga ecaggateet gtaageetga eeteeteeaa cataggagge 8940
aagaaggagt gtcagggccg gaccccctgg gtgctgaccc attgtgggga cgcatgtctg 9000
tecaggeegt gtecaacagg agategaega egtgataggg caggtgegge gaceagagat 9060
gggtgaccag gctcacatgc cctacaccac tgccgtgatt catgaggtgc agcgctttgg 9120
ggacatcgtc cccctgggtg tgacccatat gacatcccgt gacattcgaa gtacagggct 9180
nnnnnnncct gcccagggaa cgacactcat caccaacctg tcatcggtgc tgaaggatga 9360
ggccgtctgg gagaagccct tccgcttcca ccccgaacac ttcctggatg cccagggcca 9420
```

```
ctttgtgaag ccggaggeet teetgeettt eteageaggt geetgtgggg ageeeggete 9480
cctgtcccct tccgtggagt cttgcagggg tatcacccag gagccaggct cactgacgcc 9540
cctcccctcc ccacaggccg ccgtgcatgc ctcggggagc ccctggcccg catggagctc 9600
ttcctcttct tcacctccct gctgcagcac ttcagcttct cggtgcccac tggacagccc 9660
eggeecagee accatggtgt etttgettte etggtgagee catececeta tgagetttgt 9720
qctqtqcccc gctagaatgq ggtacctagt ccccagcctg ctccctagcc agaggctcta 9780
atqtacaata aaqcaatqtq qtaqttccaa ctcqqqtccc ctqctcacqc cctcqttqqq 9840
atcatectee teagggeaac eccaeceetg ceteatteet gettaceeca eegeetggee 9900
gcatttgaga caggggtacg ttgaggctga gcagatgtca gttaccettg cccataatcc 9960
catgtccccc actgacccaa ctctgactgc ccagattggt gacaaggact acattgtcct 10020
qqcatgtggg gaaggggcca gaatgggctg actagaggtg tcagtcagcc ctggatgtgg 10080
atcagggaca gcagtcctgc cagcaccatc acaacagtca cctcccttca tatatgacac 10200
cccaaaacqq aagacaaatc atggcgtcag ggagctatat gccagggcta cctacctccc 10260
agggctcagt cggcaggt
                                                                 10278
<210> 4
<211> 497
<212> PRT
<213> Human
<400> 4
Met Gly Leu Glu Ala Leu Val Pro Leu Ala Val Ile Val Ala Ile Phe
Leu Leu Leu Val Asp Leu Met His Arg Arg Gln Arg Trp Ala Ala Arg
                               25
Tyr Pro Pro Gly Pro Leu Pro Leu Pro Gly Leu Gly Asn Leu Leu His
                           40
Val Asp Phe Gln Asn Thr Pro Tyr Cys Phe Asp Gln Leu Arg Arg Arg
                       55
Phe Gly Asp Val Phe Ser Leu Gln Leu Ala Trp Thr Pro Val Val Val
                   70
Leu Asn Gly Leu Ala Ala Val Arg Glu Ala Leu Val Thr His Gly Glu
               85
                                   90
Asp Thr Ala Asp Arg Pro Pro Val Pro Ile Thr Gln Ile Leu Gly Phe
Gly Pro Arg Ser Gln Gly Val Phe Leu Ala Arg Tyr Gly Pro Ala Trp
                                               125
                           120
Arg Glu Gln Arg Arg Phe Ser Val Ser Thr Leu Arg Asn Leu Gly Leu
                                           140
Gly Lys Lys Ser Leu Glu Gln Trp Val Thr Glu Glu Ala Ala Cys Leu
                   150
                                       155
Cys Ala Ala Phe Ala Asn His Ser Gly Arg Pro Phe Arg Pro Asn Gly
               165
                                   170
Leu Leu Asp Lys Ala Val Ser Asn Val Ile Ala Ser Leu Thr Cys Gly
           180
                               185
                                                   190
Arg Arg Phe Glu Tyr Asp Asp Pro Arg Phe Leu Arg Leu Leu Asp Leu
        195
                           200
Ala Gln Glu Gly Leu Lys Glu Glu Ser Gly Phe Leu Arg Glu Val Leu
                       215
                                           220
Asn Ala Val Pro Val Leu Leu His Ile Pro Ala Leu Ala Gly Lys Val
225
                   230
                                       235
                                                           240
Leu Arg Phe Gln Lys Ala Phe Leu Thr Gln Leu Asp Glu Leu Leu Thr
                                   250
Glu His Arg Met Thr Trp Asp Pro Ala Gln Pro Pro Arg Asp Leu Thr
                                                   270
           260
                               265
Glu Ala Phe Leu Ala Glu Met Glu Lys Ala Lys Gly Asn Pro Glu Ser
```

```
275
                            280
                                                285
Ser Phe Asn Asp Glu Asn Leu Arg Ile Val Val Ala Asp Leu Phe Ser
                      `295
                                            300
Ala Gly Met Val Thr Thr Ser Thr Thr Leu Ala Trp Gly Leu Leu
                    310
                                        315
Met Ile Leu His Pro Asp Val Gln Arg Arg Val Gln Gln Glu Ile Asp
                                    330
                325
Asp Val Ile Gly Gln Val Arg Arg Pro Glu Met Gly Asp Gln Ala His
            340
                                345
Met Pro Tyr Thr Thr Ala Val Ile His Glu Val Gln Arg Phe Gly Asp
                            360
Ile Val Pro Leu Gly Val Thr His Met Thr Ser Arg Asp Ile Glu Val
                                            380
                        375
Gln Gly Phe Arg Ile Pro Lys Gly Thr Thr Leu Ile Thr Asn Leu Ser
                    390
                                        395
Ser Val Leu Lys Asp Glu Ala Val Trp Glu Lys Pro Phe Arg Phe His
                405
                                    410
Pro Glu His Phe Leu Asp Ala Gln Gly His Phe Val Lys Pro Glu Ala
            420
                                425
                                                    430
Phe Leu Pro Phe Ser Ala Gly Arg Arg Ala Cys Leu Gly Glu Pro Leu
                            440
Ala Arg Met Glu Leu Phe Leu Phe Phe Thr Ser Leu Leu Gln His Phe
                        455
                                            460
Ser Phe Ser Val Pro Thr Gly Gln Pro Arg Pro Ser His His Gly Val
                    470
                                        475
Phe Ala Phe Leu Val Ser Pro Ser Pro Tyr Glu Leu Cys Ala Val Pro
                                    490
                485
Arg
```